

U.S. Environmental Protection Agency (EPA) Comment for the Oklahoma Water Resources Board's (OWRB) Consideration as OWRB Initiates the Fall 2013 Proposed Water Quality Standards Rulemaking

Comment: The following two revisions are needed in Appendix E, Section F.2 of Oklahoma's Water Quality Standards (OK WQS):

- "FWER_t = 0.0876" should be revised to "FWER_t = 0.1461"
- "FWER_d = 0.1306" should be revised to "FWER_d = 0.2078"

Relevant Excerpt from the 2013 OK WQS:

APPENDIX E. REQUIREMENTS FOR DEVELOPMENT OF SITE-SPECIFIC CRITERIA FOR CERTAIN PARAMETERS

F. Site-specific Criteria for Metals Which Have Been Developed for Particular Waterbodies

2. AES Shady Point Discharge to Poteau River

A site-specific criteria modification study has been satisfactorily completed for copper for AES Shady Point.

FWER_t = 0.0876
FWER_d = 0.1306
f = 0.5936

The results of the study allow any of the four following criteria to be utilized.

C _{cst} = 9.50 µg/L	Statewide criterion
S _{cst} = 65 µg/L	Option 1
S _{cst} = 15.3 µg/L	Option 2
S _{cst} = 74 µg/L	Option 3

The discharger may choose the above criterion it wishes to use for discharge permit calculations.

Historical Background: Copper site-specific criteria for the AES Shady Point discharge to the Poteau River (based on a water effect ratio (WER) study) were originally adopted into OK's WQS in 2000 and were revised in 2001.

The following values were originally adopted in 2000.

FWER_t = 0.0876
FWER_d = 0.1306
f = 0.5936

C _{cst} = 9.50 µg/L	Statewide criterion
S _{cst} = 108.45 µg/L	Option 1
S _{cst} = 15.38 µg/L	Option 2
S _{cst} = 117.81 µg/L	Option 3

On January 9, 2001, EPA disapproved the site-specific criteria described above as Options 1, 2, and 3. Here is an excerpt from EPA's disapproval letter:

The State has proposed the site-specific water quality criteria for copper based on a Water Effect Ratio (WER) study conducted for the AES Shady Point wastewater discharge to the Poteau River in accordance with the State's guidance (Appendix E). The guidance requires an explanation of any individual WER obtained, but not used in the computation of the final WER. Of the six individual WER studies completed, only four were used in the calculation of the final WER. The explanation for the exclusion of two individual WERs was not related to scientific validity, but to provide a final WER which would result in permit limits for AES Shady Point with the maximum concentration of copper. Inclusion of the remaining individual WER studies would have resulted in permit limits approximately forty percent more stringent than would result from the adopted final WER values. This decision has jeopardized the validity of the adopted final WER because the two individual WERs not included were for the more sensitive species, Ceriodaphnia dubia. In excluding these results the influence of the individual WER values for the less sensitive species, the fathead minnow, caused the final WER to establish a long-term instream criteria for copper that clearly demonstrated acute toxicity for the more sensitive species in one of the individual WER studies.

While the State has adopted guidance for Water Effect Ratio studies as APPENDIX E., adherence to the guidance should not be the only gauge for the State's acceptance and adoption as revisions to the Oklahoma Water Quality Standards. Sound science is and should always be the basis for adjusting water quality criteria. Excluding data points to provide wastewater discharges with the highest permit limitations at the expense of the receiving stream and its biota violates the federal and state codified regulations. While EPA supports the development and adoption of guidance for the establishment of site-specific criteria, a thorough scientific evaluation is necessary regardless of whether the study adheres to general guidance.

To correct this action the State must adopt scientifically defensible site-specific criteria, or more stringent criteria, for the AES Shady Point discharge as follows, based on the geometric mean of all individual water effects ratio studies, and applicable to the development of permit limitations and limitation screening as found in OAC 785:46 Subchapter 5:

$S_{cst} = 65 \mu\text{g/L}$	Option 1 (Translates statewide total criteria to site-specific total criteria)
$S_{cst} = 15.3 \mu\text{g/L}$	Option 2 (Establishes a site-specific dissolved to total concentration fraction)
$S_{cst} = 74 \mu\text{g/L}$	Option 3 (Translates statewide dissolved criteria to site-specific total criteria)

Action: ...EPA disapproves the amendment for AES Shady Point for copper to the Poteau River.

To correct EPA's disapproval, OWRB adopted revised site-specific criteria in 2001. More specifically, the following revisions were made (shown using redline/strikeout below):

$S_{cst} = $ 108.45 65 $\mu\text{g/L}$	Option 1
$S_{cst} = $ 15.38 15.3 $\mu\text{g/L}$	Option 2
$S_{cst} = $ 117.81 74 $\mu\text{g/L}$	Option 3

EPA approved the above revisions on August 7, 2002.

Supporting Rationale for Revising FWER_t and FWER_d: When the original site-specific copper criteria were adopted in 2000, OWRB not only adopted the site-specific copper criteria described as Options 1, 2, and 3, but OWRB also adopted language to show the final WER values themselves (FWER_t and FWER_d), along with the dissolved to total fraction (f) value and the applicable chronic statewide total criterion (C_{cst}).

When OWRB adopted the revised site-specific copper criteria in 2001 (described as Options 1, 2, and 3), OWRB did not concurrently revise the final WER values (FWER_t and FWER_d) that were originally adopted in

2000. For transparency purposes, the final WER values originally adopted in 2000 ($\text{FWER}_t = 0.0876$ and $\text{FWER}_d = 0.1306$) should have been revised to reflect the final WER values actually used to derive the revised site-specific criteria subsequently adopted in 2001.

The final WER values actually used to derive the revised site-specific criteria adopted in 2001 were $\text{FWER}_t = 0.1461$ and $\text{FWER}_d = 0.2078$. As such, the following two revisions are needed in Appendix E, Section F.2 of the OK WQS:

- “ $\text{FWER}_t = 0.0876$ ” should be revised to “ $\text{FWER}_t = 0.1461$ ”
- “ $\text{FWER}_d = 0.1306$ ” should be revised to “ $\text{FWER}_d = 0.2078$ ”